

ABSTRACT

A subject for the invention relates to providing a positive active material for lithium ion secondary batteries which attains a high discharge capacity and is excellent in rate characteristics and cycle characteristics.

A feature of the invention resides in that a lithium-nickel-manganese composite oxide which has a composition represented by $\text{Li}_x\text{Ni}_y\text{Mn}_z\text{O}_2$ wherein x is $1+1/9 \pm (1+1/9)/10$, y is $4/9 \pm (4/9)/10$, and z is $4/9 \pm (4/9)/10$, in particular, represented by the general formula $\text{Li}[\text{Ni}_{0.5-0.5x}\text{Mn}_{0.5-0.5x}\text{Li}_x]\text{O}_2$ wherein x satisfies $0.05 \leq x \leq 0.11$, and has a crystal structure belonging to the monoclinic system and having a space group of $\text{C}12/\text{m}1$ (No. 12) is used as a positive-electrode material. The lithium-nickel-manganese composite oxide preferably is one in which in X-ray powder diffractometry using a $\text{Cu-K}\alpha$ ray, the peak intensity ratio $I_{(002)}/I_{(13-3)}$ between the (002) plane and the (13-3) plane in terms of Miller indexes hkl on the assumption of belonging to $\text{C}12/\text{m}1$ (No. 12) of the monoclinic system is 1.35 or higher.